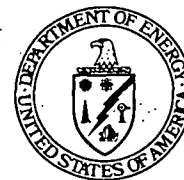




**Department of Energy**  
**Ohio Field Office**  
**Fernald Environmental Management Project**  
**P. O. Box 538705**  
**Cincinnati, Ohio 45253-8705**  
**(513) 648-3155**



**4656**

DEC 23 2002

Mr. James A. Saric, Remedial Project Manager  
United States Environmental Protection Agency  
Region V-SRF-5J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

DOE-0151-03

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5<sup>th</sup> Street  
Dayton, Ohio 45402-2911

**TRANSMITTAL OF THE THIRD QUARTER 2002 RE-INJECTION OPERATING REPORT**

This letter serves to transmit the subject report for your review, approval, and submittal to the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA).

This report is being submitted to the USEPA and OEPA Office of Federal Facilities Oversight in accordance with the Re-Injection Demonstration Test Plan. The report is also being submitted to the OEPA Division of Drinking and Ground Waters unit of Underground Injection Control (UIC) in accordance with their guidelines.

Based on OEPA concurrence, the quarterly reporting format began with the Second Quarter 2002 Report.

If you have questions or concerns regarding this report, please contact Kathleen Nickel of at (513) 648-3166.

Sincerely,

Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FEMP:R.J. Janke

Enclosure: As Stated

DEC 23 2002

DOE-0151-03

4656

Mr. James A. Saric  
Mr. Tom Schneider

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cc w/enclosure:

R. J. Janke, OH/FEMP  
A. Murphy, OH/FEMP  
T. Schneider, OEPA-Dayton (three copies of enclosure)  
G. Jablonowski, USEPA-V, SRF-5J  
F. Bell, ATSDR  
M. Cullerton, Tetra Tech  
M. Shupe, HSI GeoTrans  
R. Vandegrift, ODH  
AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosure:

R. Greenberg, EM-31/CLOV  
N. Hallein, EM-31/CLOV  
A. Tanner, OH/FEMP  
D. Brettschneider, Fluor Fernald, Inc./MS52-5  
D. Carr, Fluor Fernald, Inc./MS2  
M. Frank, Fluor Fernald, Inc./MS90  
T. Hagen, Fluor Fernald, Inc./MS9  
W. Hertel, Fluor Fernald, Inc./MS52-5  
M. Jewett, Fluor Fernald, Inc./MS52-5  
T. Poff, Fluor Fernald, Inc./MS65-2  
ECDC, Fluor Fernald, Inc./MS52-7

THIRD QUARTER 2002  
RE-INJECTION OPERATING REPORT

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Re-injection at Fernald is exempted under 40 CFR 300.400(e)(1) from requiring a permit, as it is a CERCLA action. Ohio EPA Guidelines (OEPA 1997), suggest monthly operating reports be submitted that include:

- I. An analysis of the injectate
  - Composite daily total uranium results from the injectate source (AWWT Expansion Facility effluent) for days when re-injection occurred are shown in Figure 1.
  - The monthly grab sample results for the third quarter 2002 are provided in Table 1.
- II. The volume and rate of re-injection
  - Table 2 summarizes third quarter 2002 operational data.
- III. A description of any well maintenance and rehabilitation procedures conducted.
  - No well maintenance or rehabilitation occurred in July, August, or September 2002.

DOE has submitted the monthly reports since re-injection began in September 1998 through March 2002. Due to the routine nature of the reports, DOE and Ohio EPA agreed in March 2002 that the monthly information would be provided in quarterly reports beginning with the report for the second quarter 2002.

Routine monitoring of the aquifer in the re-injection area is conducted as part of the groundwater remedy performance monitoring program specified in Fernald's Integrated Environmental Monitoring Plan (IEMP). Results of the IEMP are reported semi-annually and are available for viewing on the Fernald website, [www.fernald.gov](http://www.fernald.gov). Location of the re-injection wells is shown in Figure 2.

ANALYSIS OF THE INJECTATE

No constituents exceeded their FRLs. The following total uranium concentrations were measured in the monthly grab and daily composite samples, respectively:

- July 30, 2002: 3.89 micrograms per liter ( $\mu\text{g/L}$ ) and 4.3  $\mu\text{g/L}$
- August 15, 2002: 3.19  $\mu\text{g/L}$  and 4.4  $\mu\text{g/L}$
- September 4, 2002: 4.02  $\mu\text{g/L}$  and 4.6  $\mu\text{g/L}$ .

TABLE 1  
ANALYSIS OF INJECTATE

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Constituents <sup>a</sup>	Results <sup>b</sup>			Groundwater FRL <sup>c</sup>	Constituent Type <sup>e</sup>	Basis for FRL <sup>f</sup>
	July 30, 2002	August 15, 2002	September 4, 2002			
<b>General Chemistry</b>				mg/L		
Nitrate	0.92	0.81	0.84	11.0	MP	B
<b>Inorganics</b>				mg/L		
Antimony	U	U	U	0.006	N	A
Arsenic	U	U	U	0.05	N	A
Barium	0.0523 B	0.0534 B	0.053 B	2.0	N	A
Beryllium	U	U	U	0.004	N	A
Cadmium	U	U	U	0.014	N	B
Chromium, total	0.00056 B	U	U	0.022 <sup>d</sup>	MP	R
Cobalt	U	U	U	0.17	N	R
Lead	U	U	U	0.015	N	A
Manganese	U	U	U	0.9	N	B
Mercury	U	U	U	0.002	MP	A
Nickel	U	U	0.0004 B	0.1	N	A
Selenium	U	U	U	0.05	N	A
Silver	U	U	U	0.05	N	R
Vanadium	U	U	U	0.038	N	R
Zinc	0.0038 B	0.0017 B	U	0.021	N	B
<b>Radionuclides</b>				pCi/L		
Neptunium-237	U	U	U	1.0	MP	R*
Radium-226	0.056	U	U	20.0	N	A
Strontium-90	U	U	U	8.0	MP	A
Thorium-228	U	U	U	4.0	N	R*
Thorium-232	U	U	U	1.2	N	R*
<b>Organics</b>				µg/L		
Uranium, total	3.89	3.19	4.02	30.0	MP	A
<b>Organics</b>				µg/L		
Bis(2-ethylhexyl)phthalate	U	5.0 B	6.0 B	6.0	N	A
Carbon disulfide	0.1 JB	U	U	5.5	N	A
1, 1-Dichloroethene	U	U	U	7.0	N	A
1, 2-Dichloroethane	U	U	U	5.0	MP	A
Trichloroethene	U	U	U	5.0	N	A

Results Qualifiers: U = Nondetected result, B (inorganics) = Reported result is greater than the instrument detection level but less than the contract required detection limit, B (organics) = The compound is detected in an associated lab blank. J = Reported result is positively detected but is estimated; the result is still usable for making decisions.

<sup>a</sup>Constituents taken from Table 2-1 of the Re-Injection Demonstration Test Plan, and are those previously detected in Aquifer Zones 2 and 4 at concentrations above their FRL.

<sup>b</sup>If a duplicate sample was analyzed, then the highest concentration between the regular sample and duplicate sample is reported.

<sup>c</sup>From Table 9-4 in the Operable Unit 5 Record of Decision Report.

<sup>d</sup>FRL is for hexavalent chromium.

<sup>e</sup>Constituent types from Appendix A of IEMP. MP indicates that the constituent has been identified as being able to migrate to the aquifer. N indicates that the constituent has been identified as not being able to migrate to the aquifer.

<sup>f</sup>A - Applicable or relevant and appropriate requirement based (MCL, PMCL, etc.), B - Based on 95<sup>th</sup> percentile background concentrations, R - Risk-based, R\* - Risk-based radionuclide cleanup levels include constituent specific 95<sup>th</sup> percentile background concentration.

TABLE 2

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RE-INJECTION WELL OPERATIONAL SUMMARY SHEET  
THIRD QUARTER 2002

Well Number	Reporting Period (hours) <sup>a</sup>	Hours Not Injecting <sup>b</sup>	Hours Injecting <sup>c</sup>	Operational Percent <sup>d</sup>	Million Gallons Injected <sup>e</sup>	Target /Average <sup>f</sup> Operating Injection Rate (gpm)
22107 (IW-8)	2208.00	2208.00	0.00	0.00	0.00	200 / 0
22108 (IW-9)	2208.00	2208.00	0.00	0.00	0.00	200 / 0
22109 (IW-10)	2208.00	116.00	2092.00	94.75	24.80130	200 / 198
22240 (IW-11)	2208.00	116.00	2092.00	94.75	25.04361	200 / 200
22111 (IW-12)	2208.00	116.00	2092.00	94.75	25.09551	200 / 200

<sup>a</sup>First operational shift reading on July 1, 2002 to first operational shift reading on October 1, 2002.

<sup>b</sup>System downtime as noted on Figure 1.

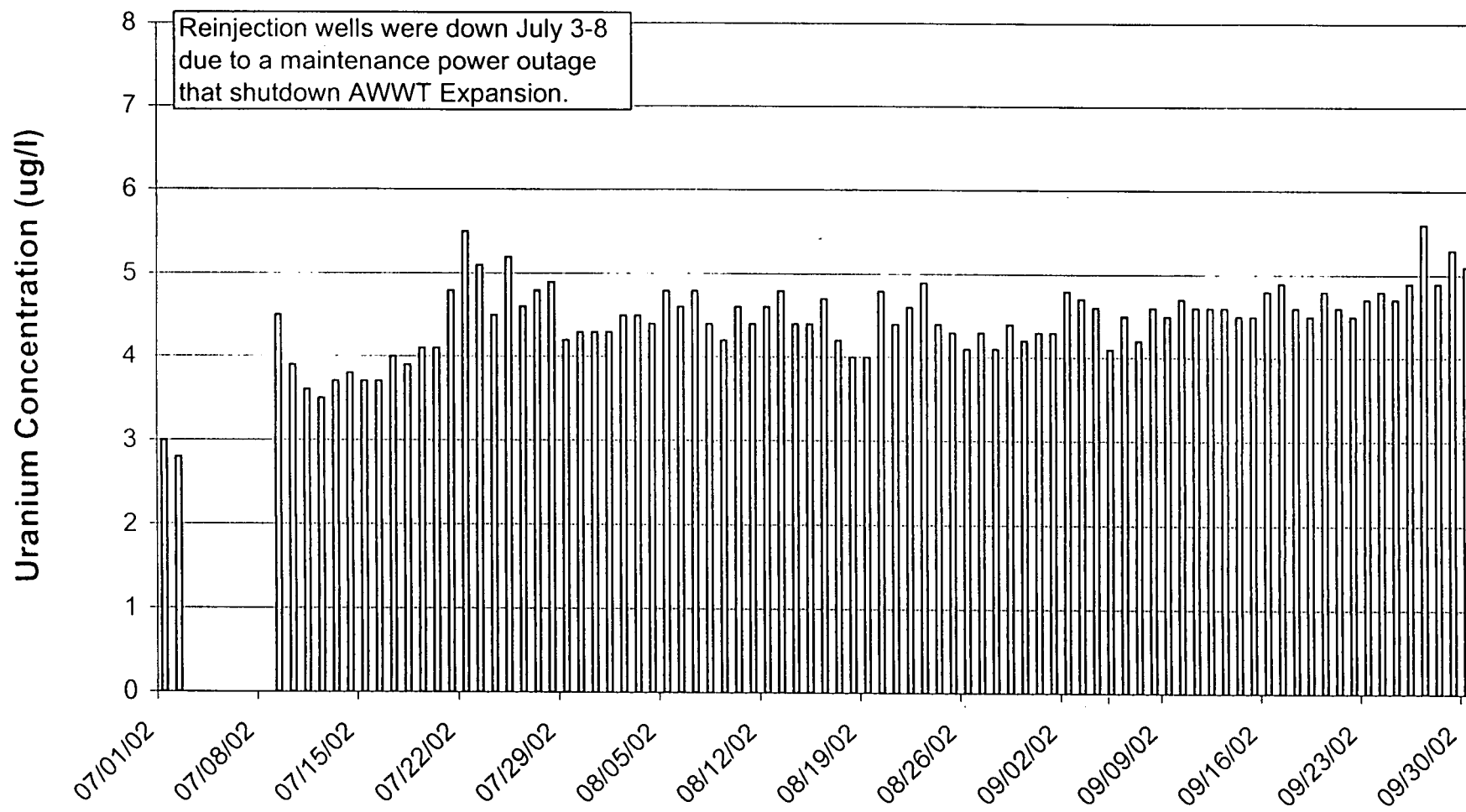
<sup>c</sup>Hours in reporting period - Hours not injecting

<sup>d</sup>(Hours injecting/Hours in reporting period) x 100

<sup>e</sup>Summation of daily totalizer differences

<sup>f</sup>Gallons Injected/(Hours Injecting x 60)

**Figure 1**  
**Daily Composite Uranium Results from AWWT Expansion System for Days when Reinjection Occurred**



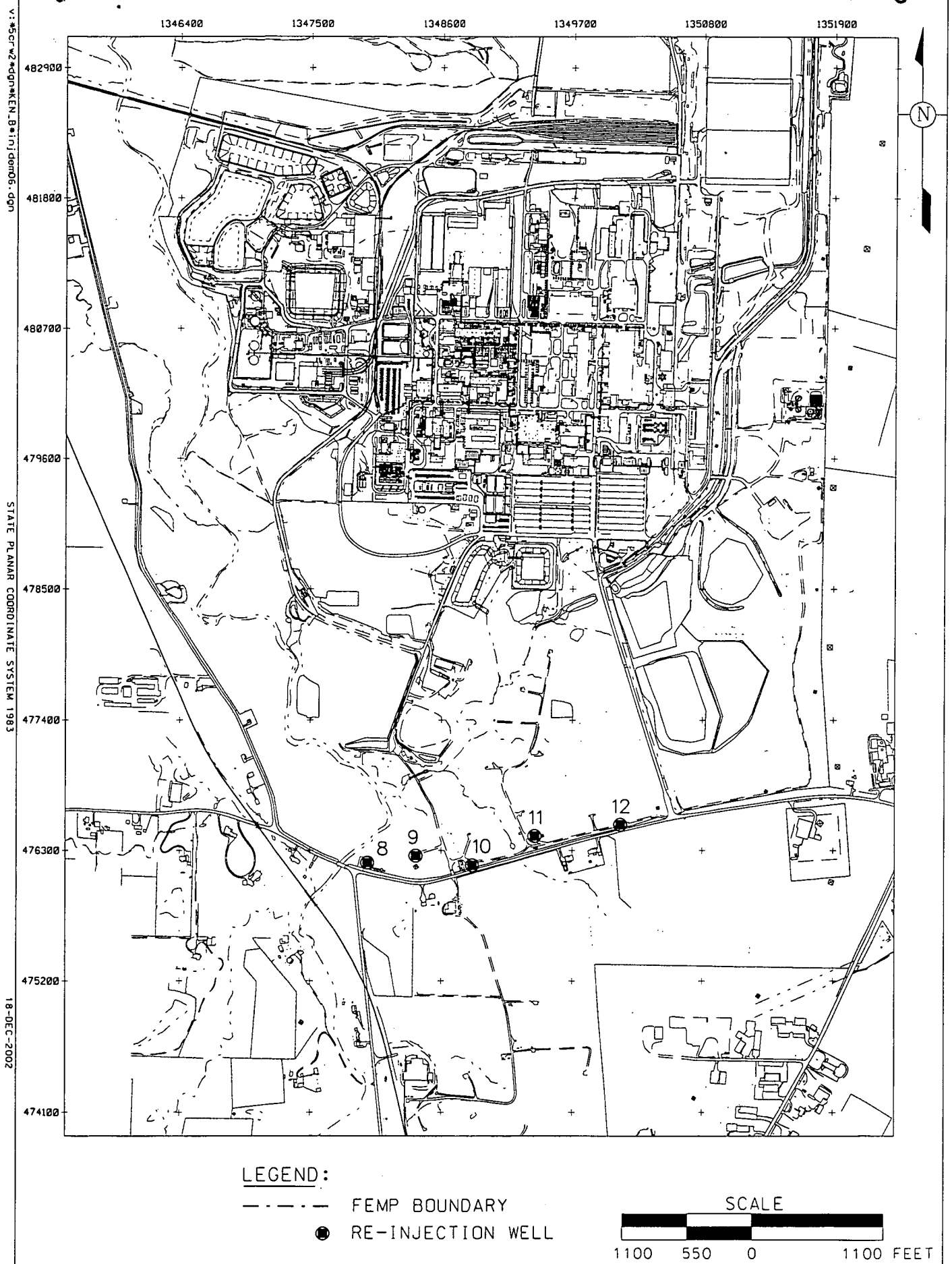


FIGURE 2. LOCATION OF RE-INJECTION WELLS